

Strategic SOA for Managers & Executives

"For over 17 years, ISS has been assisting clients transform their IT departments into agile, responsive organizations that successfully deliver high quality business-aligned solutions on time and on budget... meeting or exceeding customer expectations."

FastTr@ck™ To The Agile Enterprise



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Strategic SOA

Course Agenda

Topic
Change and Agility
The IT Bundle of Yarn
Decomposing the eBusiness Debacle
Why can't IT Do What I Want?
The Colonel's Recipe: Loose Coupling
Life raft: Service Orientation
Architects? Can't Live With Them. Can't SOA Without them!
How to Think Service Oriented
Address Organizations: The 800lb Gorilla
Building Agility with Agility
Becoming a Service-Oriented Enterprise



Introduction

Strategic SOA

Setting The Stage....

- This is Not A Technical Course...It's a Business Course About TechnologySorry Techies
- First Hour
 - Look At the Symptoms Leading to the Introduction of SOA
 - Candid Perspective...so If I Offend...I Apologize.
- Next Hour
 - Business Perspective Of SOA...with some technology
- Last Two Hours
 - Transitioning To SOA



"The more haste, ever the worst speed." ...Churchill

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Change & Agility

Strategic SOA

Irony of Government and IT

- The Industrial Age is Long Gone!
- Welcome To the Information Age
- Goals Leverage IT:
 - Productivity
 - Efficiency
 - Etc.

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Change & Agility

Strategic SOA

What Is IT From A Business Perspective



**Business
Only Please**



- IT is a Business Resource
- Business Resources Focus On Addressing Business Problems
- How Do We Leverage Business Resources (IT and Others) to Address Problems....Service Orientation.
- Service Orientation is **NOT** IT Centric! Its Business Centric.

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Change & Agility

Strategic SOA

No Matter Where You Go....There It Is

- Inflexibility = Basis of All Problems
- Flexibility is Key to Long-term Success
- Root Cause of Inflexibility = **Human Nature**
 - Fear of Unknown
 - Resistance to Change
 - Limited Attention Spans
 - Personal Motivations
 - Self Interests
 - Avoid Pain
 - Elementary School...Your In My Seat!
- Service Orientation!
 - Flexible IT **AND** Flexibility With IT



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Change & Agility

Strategic SOA

One Constant...Change



- “There are known knowns, known unknowns, and unknown unknowns...”
D. Rumsfeld
- Unknown “Unknowns”
 - Internet
 - Global Terrorism
 - ???...Mega Solar Storm
- Agility is Key!

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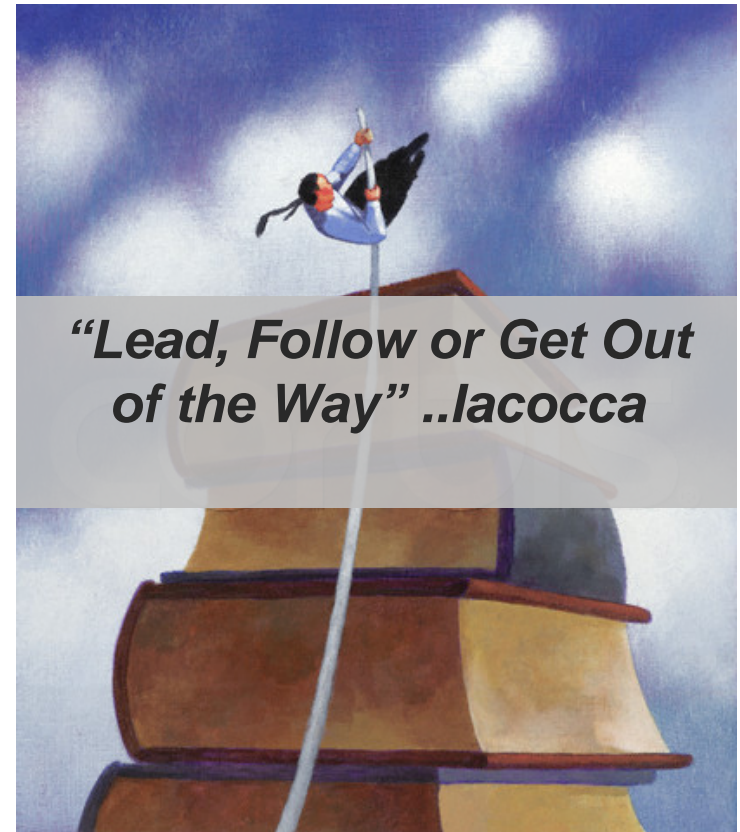


Change & Agility

Strategic SOA

Organizational Agility

- Ability to Respond Quickly **AND** Efficiently and Leverage Change for Constituency Advantages
- Two Parts
 - Tactical: Ability to Respond – Faster is Better!
 - Strategic: Leverage Change For Advantage!
- Strategic Advantage for Constituency?



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Change & Agility

Strategic SOA

Constituents...We Don't Need No Stink'in....

- New Global Competition...pick one! China:
 - 360,000 new engineers per year join China's workforce
 - 39 cents per hour for industry laborers, and \$20 per month for general laborers
 - Hundreds of thousands of jobs are disappearing in North America
 - Natural resource and energy prices are skyrocketing, in part because of increased global demand
- Government & Business = Organic Relationship:
 - Integral to the Competitive Advantage
 - Growing Business = Jobs and Government Revenues
 - Growing Jobs = Government Revenues
- Organic Relationships
 - Strategic Value for One....Strategic Value for All
 - Agility is a Strategic Value

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IT Yarn Ball

Strategic SOA

Stop Digging

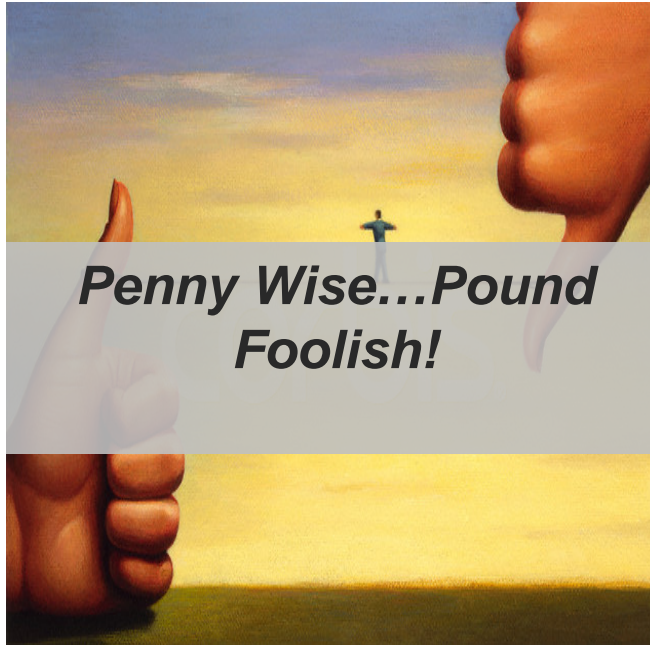
- “When your deep in a hole...stop digging.”
Papa Keen
- What Makes Things So Complex?
 - Number of Employees?
 - Number of Systems?
 - Number of Process?
 - ...Number of Decisions
- Driving Value
 - Accurate Facts
 - Alignment
- IT...few facts...poor alignment...problematic at best.



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Incremental Decision Making Problem



- Technology
Change...Leading Edge
Today...Obsolete Tomorrow.
- IT Inertia
 - Saving Face...
 - Vendor Promises...
 - IT "Religion":
 - Rational, Business-based
Decisions vs. Emotional,
Egotistical Resistance
- Biggest IT Decision Flaw =
Only Today's Requirements
 - Inflexible & Brittle
 - Loaded with Inertia



IT Yarn Ball

Strategic SOA

"Bad planning on your part does not constitute an emergency on my part"

- Does Anyone Not Want Long-term Flexibility?
 - Decisions Based on Today's Requirements
- Short-term Rewards:
 - "Fast Time-to-Market"
 - "Quick Return-on-Investment"
 - "TCO – spend as little as possible to solve this problem!"
- IT Understands the Problem...but Why Fix IT!
 - Push the Problem To Someone Else!
- Its not the questions...it's the time frame...prerequisite for Service Orientation.



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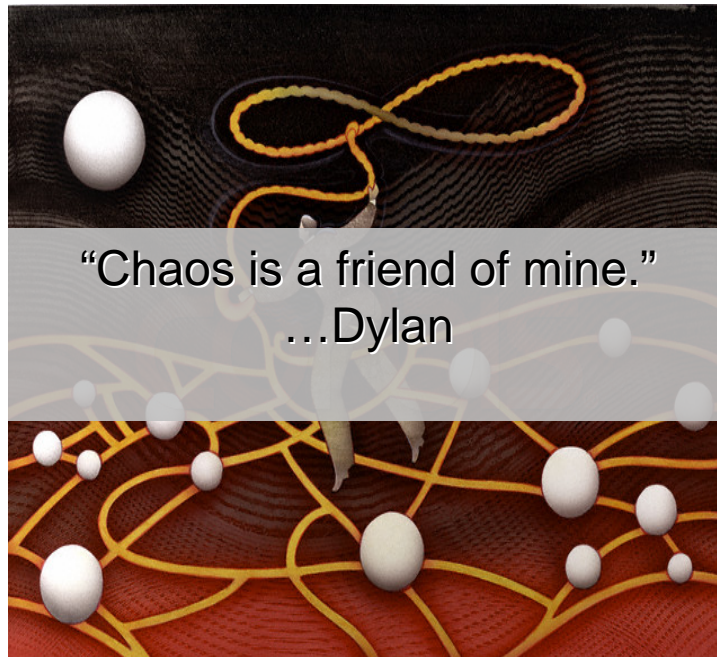




IT Yarn Ball

Strategic SOA

The ROI Paradigm....



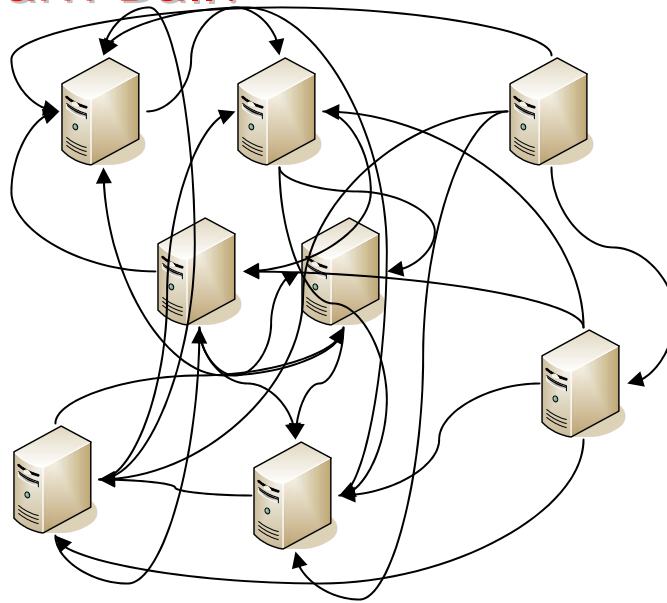
- Creating the Ball
 - ROI = focus on the short-term (this month, quarter, maybe a year)
 - Least Expensive, Most Expedient Choice
 - Yarn Ball of connections, process and dependencies
 - Geometric (n^2) compounding with each decision
 - More Expensive & Hopeless
- Must Untangle The Mess...Not Start Over



IT Yarn Ball

Strategic SOA

Yarn Ball?



- The Geometric Conundrum:
- One (1) Checkerboard
- Start with one Grain of Wheat
- Square the Number of Grains For Square on the Board.
- Let's Make a Deal - I'll Pay:
- \$100.00
- \$1,000.00
- \$1,000,000.00
- \$10,000,000.00

$2^{64}-1 = 18,446,744,073,709,551,615$ Grains of Wheat!
"18.45 Quintillion"



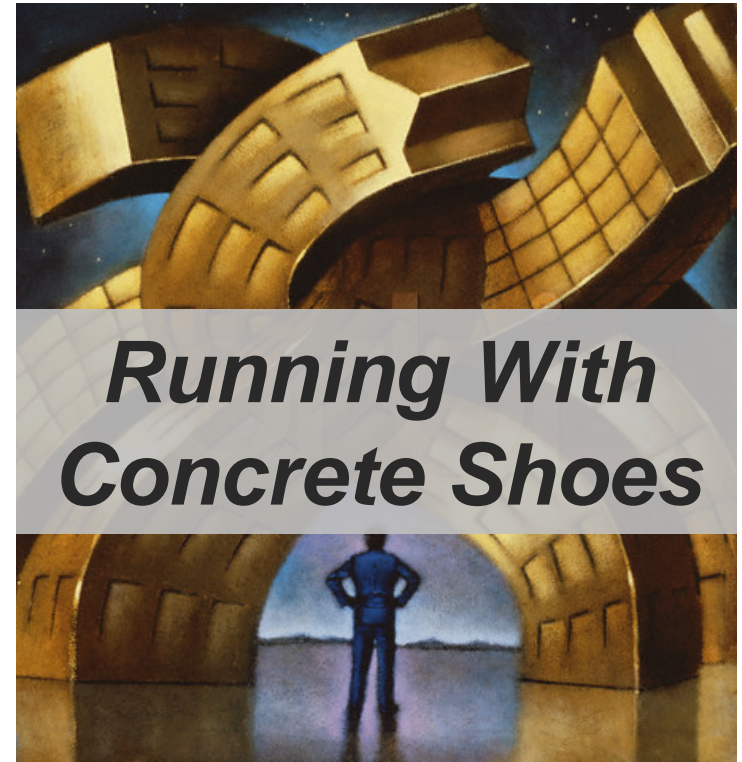


The eBusiness Debacle

Strategic SOA

Killing a Cliché

- “Business-IT Alignment”
 - Consultant Speak
 - IT Initiatives Bring IT Capabilities Into Alignment with Business Requirements
 - Does NOT Ensure Agility!!
- Corporate Resistance to Change and Inflexibility
- Avoid the snake-oil elixirs of promised agility through Business-IT Alignment.



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The eBusiness Debacle

Strategic SOA

What Happened?



- eCommerce  eBusiness
 - eBusiness:
 - Leverage IT Resources
“Throughout” Business Processes
 - eCommerce:
 - Specialization of eBusiness
That is **NOT** Limited to
Selling on the World Wide Web
- New Economy: “dot.com or death!”
 - Peak of Business-IT
Alignment....Finally!
- Really Old Economy With New Technology.

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The eBusiness Debacle

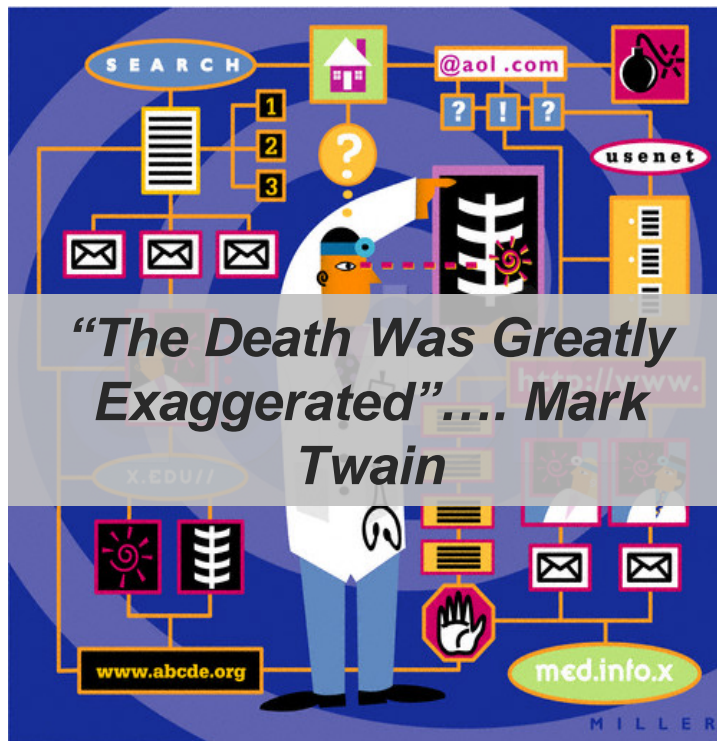
Strategic SOA

eBusiness Is Dead...Right?

- Don't Throw the IT Baby Out with the New Economy Bath Water.
- Internet....
 - Didn't just penetrate business...it transformed it!
 - Business Avenues Today Which Were Not Possible Ten Years Ago
 - Do You Use The Internet Today?
- eBusiness Is Not Always Implemented With The Internet



Why Was The Internet So Pervasive?



- Three Essential Characteristics
 - Open Standards:
 - Every Pieces of Software Connect Would Work Predictably
 - Free
 - Creators Standards Away for Free...Software & Hardware Vendors Incorporated Standards
 - Ubiquitous
 - Large Teleco(s) built out massive Infrastructures.
- Didn't Bring About Communications...Just Made the Mode – Standard, Free, Ubiquitous.



The eBusiness Debacle

Strategic SOA

Moore's Law and Service Orientation

- Power of IT Doubles Every 1½ Years...Intel's Gordon Moore.
Geometric...Remember the Wheat...
- Practicality of Service Orientation:
 - Moore's Law
 - Maturing Standards
 - Dramatic Improvements in IT Infrastructure
 - Remember this for later..



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The eBusiness Debacle

Strategic SOA

Forget It...Buy A Package.....Right?



***“87% over budget,
delivered late, and still
fail to meet user needs.”***

- ERP / CRM Packages:
 - Necessary Evils
 - Contribute Enormously to Inflexibility
- Secret to eBusiness
 - Packaging Business Resources (Functionality and IT) to Simplify Complexity
 - Clear Expectations of Interactions and Results Provided
- Separation – Boundary Business People accessing Business Resources from IT Capabilities Make Resources Work
- Separation is Key to Service Orientation

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Why IT Can't Do What I Want?

Strategic SOA

Distributed Computing Paradox

- Complexity & Power Correlate to a Limit
 - Limit: System Complexity Impedes Its Usefulness and Value
 - More Complicated to Use...Less Business Benefit ..in spite of Moore's Law.
- Don't Make The Technology Less Complex...focus on the Interface.
- Interface:
 - The Piece Of Software That People (User Interface) And Other Applications Interact With.



Why IT Can't Do What I Want?

Strategic SOA

MOM – Problem or Solution



- Middleware Is Glue That Intermediates Data or Function Between Disparate Systems
- Glue Is Good, But Apply Too Much or To The Wrong Thing & Your Stuck
- Summary:
 - Solved A Number of Business Problems
 - Unfortunately Contributed Greatly To Inflexibility
 - If Agility Is Objective – Avoid MOM (Except On Mothers Day)



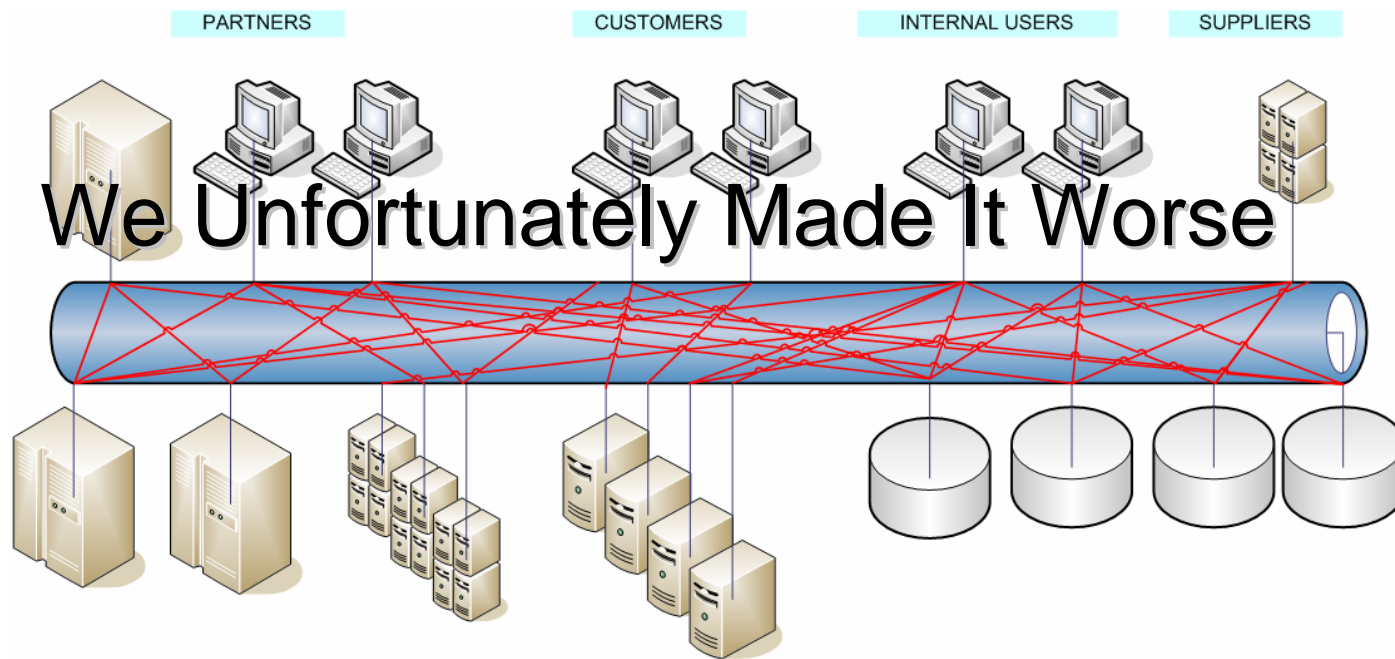
Why IT Can't Do What I Want?

Strategic SOA

EAI – Middleware for Middleware

- Geometric Growth of Interfaces Leads to the Yarn Ball
- Compounding the Problem...Short-term Focus
- EAI to the Rescue...Right?

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Why IT Can't Do What I Want?

Strategic SOA

Transitioning From Integration

- Why?
 - Simplicity Of Implementing Systems In Isolation
 - Costs Less **Over Time** to adopt agility rather than "glue-silly"
- Decision:
 - Continue to spend on brittle, inflexible layers of middleware?
 - OR.....
 - Reduce funding on middleware in order to fund spending on agile approaches...cost recovery?



***"In spite of your fear, do what you have to do."
...Chu***





Why IT Can't Do What I Want?

Strategic SOA

Workflow and Process



- Enterprises Are An Aggregation of Business Processes
- Business Process – Set Of On or More Linked Procedures or Activities Which Realize a Business Objective or Goal
- Formalize Your Processes = Rigidity
- Don't Formalize = Uncontrollable Mess
- Great!



Why IT Can't Do What I Want?

Strategic SOA

Business Process Management to the Rescue

- Business Process Management (BPM)
 - Technology-enable means to control business processes ranging over multiple systems and organizations.
 - Workflow Automation Tools
- Traditional Approach
 - Complex Processes
 - Lack Detail
 - Inaccurate
 - Business Requirements Change By The Time You Finish Modeling
- Sub-processes & Composition
 - Divide and Concur
 - Compose Sub-Process
 - Better...but still not agile
 - Can't Respond to Change Requirements



I Give Up!



Not All Is Lost!

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Loose Coupling

Strategic SOA

The Tail of Distributed Computing

- Loose Coupling Is A Fundamental Principle of Service Orientation
- PCs Shifted Computing From Centralized to Distributed (Client / Server)
 - Tightly Coupled
 - Better Than Terminals (Hardware Level Coupling)
- Standardization of Database Access...
 - Programmers Didn't Have to Know Both Ends (Application and Database)
 - Vendors Had Own DB Access Language...not an Open Standard.

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Loose Coupling

Strategic SOA

Enter The Web....Hang Loose!

- Began In 1960s
- 1990s US Government Open Internet To Commercial Use
- 1990s Swiss Physics Lab Introduces World Wide Web
 - Web Browsers & Web Servers
 - Allow Computers To Communicate With Each Other Following Specific Standard
- Combination of Using Text and Standards Loosely Coupled Browsers and Servers
- Not Perfect, i.e. Some Web Pages Didn't Work With Some Browsers...But The Workstation Didn't Lock-up (In Contrast To Client / Server)
- What if Any Step In Any Business Process Could Be Loosely Coupled?
 - Human to Computer and Computer to Computer!



Loose Coupling

Strategic SOA

Magic Dust = Abstraction

- New Old Concept
 - Computers Think in 1s and 0s
 - Early Compilers Abstracted 1s and 0s
 - Cobol – Programming In Human Understandable Language.
- Two Important Points:
 - Levels Don't Remove Complexity They Hide It.
 - IT Abstractions Are Concrete (i.e. Cobol)
- Abstraction = Intentional Simplification That Can Be Automatically Resolved Into Greater Levels of Complexity.
 - Windows GUI: Simple / Underlying Technology: Highly Complex
- Human Brains Are Wired For Abstraction – Start Your Car
- Service Orientation Is An Abstraction
 - Complexity Still Exists On Multiple Levels of Abstraction

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Loose Coupling

Strategic SOA

Types of Standards

- Types of Standards
 - De Jure Standard: Organization Create Them
 - De Facto Standard: People Find Them Useful
- Rail Road Example (De Facto):
 - Rail Width = 4' 8.5"
 - English Tramways Width
 - Same Method For Wagon Wheel Spacing
 - Ruts In Long Distance Roads
 - Roman Chariots Designed Based On the Width of Two Imperial War Horse's Rears.
 - So Now You Know What Horse's Rear Came Up With Standards.

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Loose Coupling

Strategic SOA

The Role of Open Standards

- Not Proprietary to A Single Company
- Available for Public Development and Inspection
- Supports Interoperability With Other Vendors That Follow The Standard
- Easier To Transition To Newer or Different Products
- Some Issues:
 - Standards Are Agreements = Compromise.
 - Too Many of Them, Tremendous Confusion and Overlap Until The Dust Settles
- Select Wisely
 - Space Shuttle SRB Design Limitations
- Most Importantly – Standards Adoption Increase Business Agility.

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Loose Coupling

Strategic SOA

Standards, Agility and IT

- Distributed Computing Rapidly Transitioning From Proprietary to Standards-based.
- Still Significant Proprietary Implementations...the Only Way To Get Something Done Quickly
- You must adopt standards to become agile.
 - If Every Interface Is Different or Proprietary, the more expensive and risk change is...
- Must Define Balance:
 - Flexibility vs. Competitive Advantage
- We Have Passed the Standards Tipping Point...Vendors Must Adopt Standards for Interoperability or disappear

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Loose Coupling

Strategic SOA

Thinking Loosely Coupled

- Standards Gets You Partially There...
- Interaction
 - Providers – A Piece of Software that Exposes Functionality of Information
 - Consumers – A System That Access or Uses The Functionality or Information.
 - And an Agreement: Contract
- Contract Loosely Couples The Interaction – Rules of Engagement
- Minimize The Information to Govern The Relationship
- Enforce The Contract. Allow Complete Autonomy On Implementation.

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Loose Coupling

Strategic SOA

IT Passes Puberty

- This Is All Pie-in-the-Sky!
- The Paradigm of Tight Coupling Produces Tremendous Cynicism
- No Magic....Just Hard Work
- Why Now:
 - Power of IT Systems Have Reached A Point To Handle Development and Exchange of Contracts Possible (Moore's Law)
 - IT Has Matured:
 - Standards, Practices and Products Support Loose Coupling and Ultimately Agility

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Loose Coupling

Strategic SOA

Contracts and Metadata

- Define What Functionality Provided and What Data Returned.
- Information of Responsibility of Provider and Consumer
- Rules of Engagement = Policies
 - Govern Access,
 - Security Procedures,
 - Other Rules of Engagement
- Never Include Data Being Exchanged....Only The Specifics of The Exchange or Metadata.
- A Contract Is Nothing More That Metadata Describing How Parties Interact
- Metadata – Data About Data
- Metadata is Vital To Loosely Couple Computing and Service Orientation
- Shift From Coding Functionality to Describing Functionality With Metadata

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Loose Coupling

Strategic SOA

Brining It Together

- Still Need Software To Achieve The Vision
- Must Change The Way Software Is Built
- Agility Can Be Achieved if we...
 - Represent Software Functionality and Data As Contracts Made Out of Metadata
 - Implement the Correct Management Infrastructure
- Many Organizations Will Struggle...Its Not Going To Be Easy!

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Loose Coupling

Strategic SOA

One Last Thought...Human Comprehension

- Human Comprehension Directly Impacts Degree of Looseness In Coupling
 - More Human Involvement...The Looser The Interaction Will BE
- Semantic Concepts....Meaning
- Pick Up The Phone, Randomly Dial A Number In China, Tell Me How The Conversation Goes!
- Same Problem In Distributed Computing:
 - Standards-based, Loosely Coupled Interface.
 - But The Systems Have No Understanding of the Messages Being Exchanged
- Semantic Technologies Are Still Immature but Present A Very Powerful Evolution For Those Who Adopt Service Orientation.

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Service Orientation Life Raft

Strategic SOA

Enough!...What's A Service

- A Service is.....
 - Interfaces to Software..**NOT** the Underlying Software Itself...NOT a Component.
 - Services May Be Tightly Coupled or Loosely Coupled (or Something In Between)...It **MUST** Have a Contract.
 - Providers **AND** Consumers May Have Interfaces
 - Services Interact Via Messages
 - Services May or May Not Have Standards-based Interfaces....BUT THEY SHOULD!
- Web Services:
 - Have Little To Do With WWW
 - Standards-based, Contracted Interfaces to Software Functionality
 - Specify a Standard Language for Service Definition and Interaction.
 - Not Necessarily Loosely Coupled
- Service Is An Abstraction of Software

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Service Orientation Life Raft

Strategic SOA

Service Oriented Process

- Services May Represent Processes Which Involve IT Resources, Internal Human Resources, and External Human Resources.
- Contract Specifies The Services
- Business Approach Combines Capabilities as Agile Resources That Are Created, Discovered, Combined and Accessed as Needed.
- What Am I Smoking!

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Why IT Can't Do What I Want?

Strategic SOA

Service Oriented Process...All Hype!!

- Boil Our Business Into Small Service Pieces Which Are Combined Into Something Completely Different.
- Give Me A Break! Where In The World Has This Ever Been Done Before....Just Give Me One, Single Example...That Comes Close!

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Periodic Table Of The Elements

Solid ■
Liquid ■
Gas ■
Synthetically Prepared ■

1 1.008 H Hydrogen	2 4.003 He Helium																
3 6.941 Li Lithium	4 9.012 Be Beryllium																
11 22.990 Na Sodium	12 24.305 Mg Magnesium																
19 39.098 K Potassium	20 40.078 Ca Calcium	21 44.956 Sc Scandium	22 47.88 Ti Titanium	23 50.942 V Vanadium	24 51.996 Cr Chromium	25 54.938 Mn Manganese	26 55.847 Fe Iron	27 58.933 Co Cobalt	28 58.933 Ni Nickel	29 63.546 Cu Copper	30 65.39 Zn Zinc	31 68.723 Ga Gallium	32 72.61 Ge Germanium	33 72.61 As Arsenic	34 78.96 Se Selenium	35 79.904 Br Bromine	36 83.80 Kr Krypton
37 85.468 Rb Rubidium	38 87.62 Sr Strontium	39 88.906 Y Yttrium	40 90.907 Zr Zirconium	41 91.224 Nb Niobium	42 92.906 Mo Molybdenum	43 95.94 Tc Technetium	44 101.07 Ru Ruthenium	45 101.07 Rh Rhodium	46 101.07 Pd Palladium	47 106.91 Ag Silver	48 112.411 Cd Cadmium	49 114.82 In Indium	50 118.710 Sn Tin	51 127.760 Sb Antimony	52 127.760 Te Tellurium	53 126.905 I Iodine	54 131.29 Xe Xenon
55 132.905 Cs Cesium	56 137.327 Ba Barium	57 138.905 La Lanthanum	58 138.905 Ce Cerium	59 140.908 Pr Praseodymium	60 144.24 Nd Neodymium	61 144.24 Pm Promethium	62 150.36 Sm Samarium	63 151.964 Eu Europium	64 157.25 Gd Gadolinium	65 158.925 Tb Terbium	66 162.50 Dy Dysprosium	67 164.930 Ho Holmium	68 167.259 Er Erbium	69 168.934 Tm Thulium	70 173.04 Yb Ytterbium	71 174.967 Lu Lutetium	
87 223.019 Fr Francium	88 226.025 Ra Radium	89 227.027 Ac Actinium	90 232.037 Th Thorium	91 231.036 Pa Protactinium	92 238.028 U Uranium	93 237.043 Np Neptunium	94 238.028 Pu Plutonium	95 244.063 Am Americium	96 247.070 Cm Curium	97 247.070 Bk Berkelium	98 251.077 Cf Californium	99 252.083 Es Einsteinium	100 257.10 Fm Fermium	101 259.10 Md Mendelevium	102 261.10 No Nobelium	103 261.10 Lr Lawrencium	

Notes:
() Indicates most stable or best known isotope based upon carbon-12.
* Refers to the gaseous state at 0°C and 1 atmosphere pressure. Units are g/L.
† Indicates estimated values.
‡ Most common oxidation state is shown in boldface.

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Service Orientation Life Raft

Strategic SOA

OK...Service Oriented Process...

- Business Process Notion: Process Flow and Activities That Comprise The Flow
- Organizations Are Comprised of Hundreds (if Not Thousands) of Services...Doesn't Sound Too Agile
- Composition of Services: Combine Process and Services
- Service Oriented Process – Service
 - Process Described Through Metadata – Contract
- Is It A Service Or A Process....Who Cares!
 - Consumers Are Immune to the Fact.
 - Services May Be Consumed Into Yet Another Process...Potentially Another Service Oriented Process!!!
- Are We Back To Middleware Again?
 - Service Orient Processes Replaces Brittle, Inflexible Integration Middleware.
 - Why Better....Let's Examine Costs...
 - Custom Integration (including MOMs...Sorry Mom!)
 - EAI
 - Service Oriented

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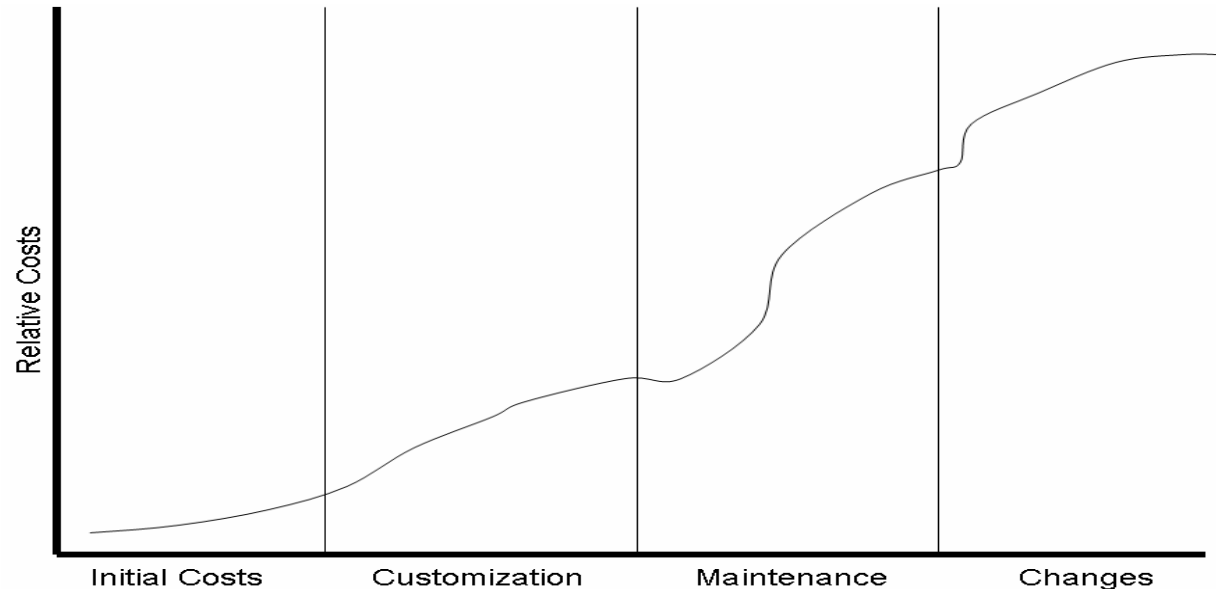


Why IT Can't Do What I Want?

Strategic SOA

Integration Costs - Custom

- Low Upfront Costs...So Far So Good
- Customization Costs Rise In Proportion To Complexity
- Maintenance Cost Rise Due to Changes In Technology and Business Requirements
- Any Business Change Requires Going Through The Whole Cycle...Big Costs



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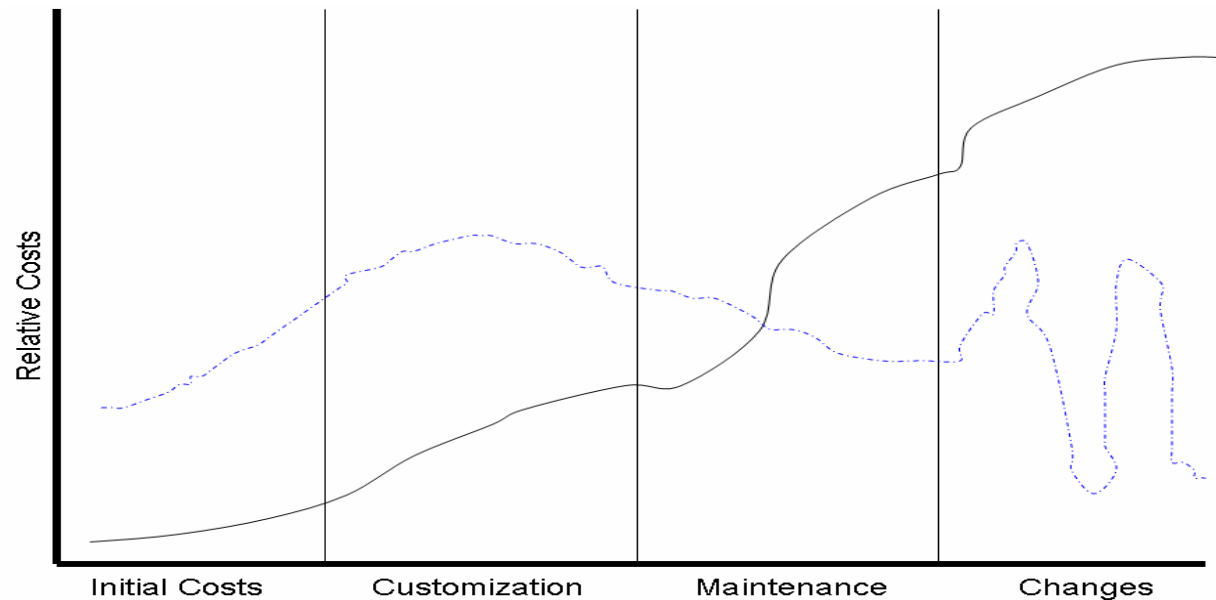


Why IT Can't Do What I Want?

Strategic SOA

Integration Costs - EAI

- More Expensive Up Front...Got To Buy The Software
- Customization Costs Are Dramatic Due to the Complexity of the Technology and Solution
- Large Companies Spend Up To 70% IT Budget On Middleware..EAI is More Glue!
- Standard-based Shell Game (lowers initial cost, but still rigid)



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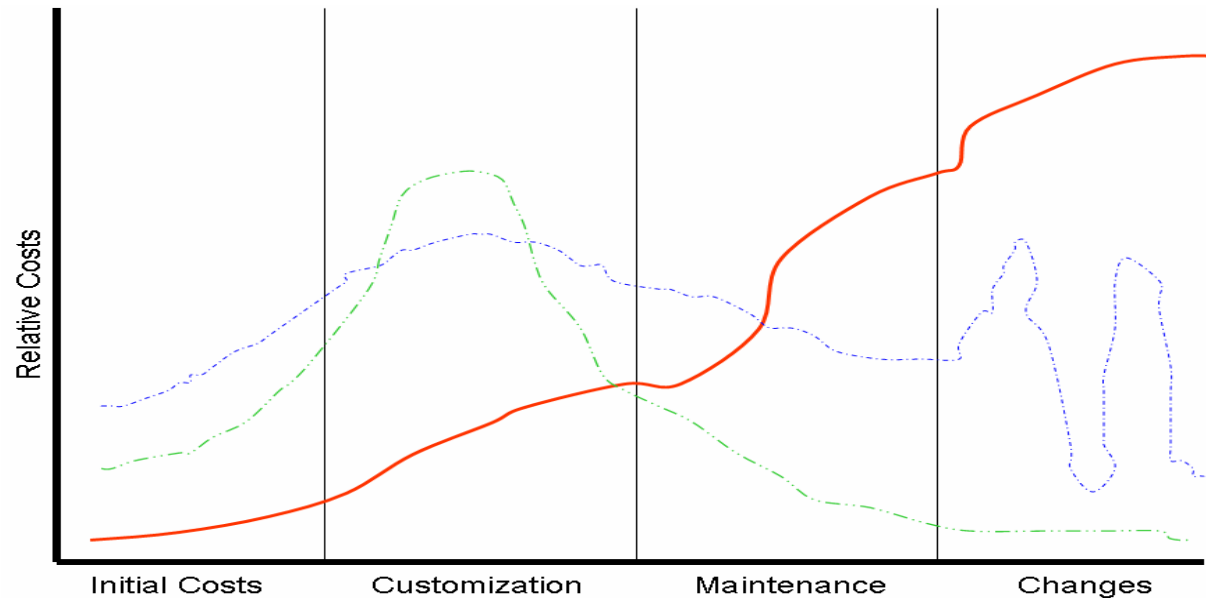


Why IT Can't Do What I Want?

Strategic SOA

Integration Costs – Service Oriented

- Not Really Integrating...Side Effect of Building Composite Loosely Coupled, Service-Oriented Processes
- Composing Processes Out Of Services and Then Exposing Those As Services...Regardless of Underlying Technology
- Cannot Just "Wrap" Existing Systems With Standards-based Interface....Must Analyze Business Process and Create Right Business Service
- Initial Costs Are Manageable..but not Insignificant....the Time To Build The Right Services Is Significant.



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Architects, Architecture...SOA

Strategic SOA

Architecture?

- We Have All The Materials We Need....Let's Build It
 - Whoa...Quick Analogy
 - All The House Materials Laying On The Ground...Build The House
 - Need A Plan...A The Discipline To Follow The Plan!
- Plan And Discipline = Architecture
 - Unfortunately We've Had Thousands Of Years To Perfect The Art Of Building Houses....Not So With IT
 - IT Immaturity Is An Excuse
- Little Agreement In IT of What An Architecture Actually Is
 - IEEE: "The fundamental organization of a system embodied by its components, their relationships to each other and to the environment and the principles guiding it's design and evolution."

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Decomposing IEEE Definition

- *The fundamental organization of a system...*
 - Organization of a System, Not The System Itself
- *...embodied by its components, their relationships to each other...*
 - Components of System and Their Relationships
- *...and to the environment...*
 - Most Important Part
 - Environment = Users and Everything They Do With Technology
 - The Business is Part of the Architecture
- *...and the principles guiding it's design...*
 - Best Practices (end point!)
- *...and evolution..."*
 - Architecture Definition Allows For...No...Requires Change!

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Architects, Architecture...SOA

Strategic SOA

So Planning and Discipline....Easy Enough



- Aaaahhhh....Slow Down Grasshopper.
- You Got The Point...Invest In Architecture and Adopt The Discipline
- Investing In Architecture Is Like Going On A Diet:
 - Seem Very Practical
 - But All The Good Intentions Often Succumb to the Temptation:
 - The Hot Fudge Sundae...with Whip Cream and Roasted Pecans...Just One...
- Urgent Demands and Bottom Lines All Too Often Deviate The Good Intentions and Discipline

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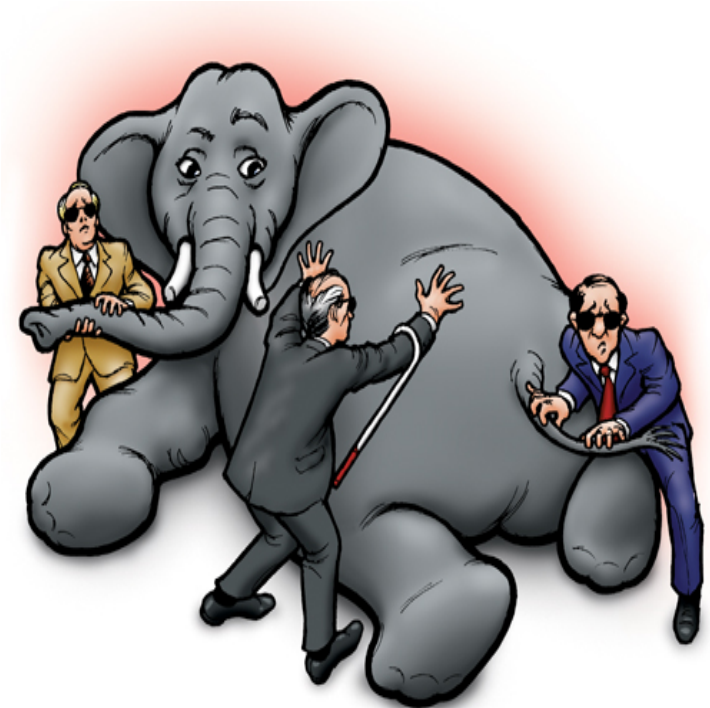


Architects, Architecture...SOA

Strategic SOA

Four Blind Architects

- Remember The Parable?
- The IT Architecture Parable:
 - Architects Who Focus On Computers, Network and Applications
 - Software Architects Focus on Organization of Applications and Other Software Components
 - Business Process Folks See The Design and Organization of Process
 - Data Architects...Data Flow
- All Valid...But Who Sees The Elephant?



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Architects, Architecture...SOA

Strategic SOA

Enterprise Architect – IEEE View

- *The fundamental organization of a system...*
 - Organization of a System, Not The System Itself
 - System Embodies The Whole Organization...
- *...embodied by its components, their relationships to each other...*
 - Components of System and Their Relationships
 - Services In The Business: Both IT and Business Services and Their Relationship
- *...and to the environment...*
 - Most Important Part
 - Environment = Users and Everything They Do With Technology
 - The Business is Part of the Architecture
 - Ecosystem The Organization Existing In...Constituents, Providers, Partners, etc.
- *...and the principles guiding it's design and evolution*
 - Best Practices (end point!)
 - Architecture Definition Allows For...No...Requires Change!
 - Sufficient Grasp of the Whole Business To Drive principles for design and evolution!

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Architects, Architecture...SOA

Strategic SOA

Get To The Point...SOA

- Service Orientation
 - Leans More Toward Business Orientation
- Enterprise Architecture
 - Leans More Toward Technology
- Both Bridge IT and Business
- Service Orientation Examines Relationship Between Business & IT
- Enterprise Architecture is a Set of Best Practices (Disciplines) for Building Business That Leverage IT Resources
- SOA Is Enterprise Architecture Oriented Toward Services:
 - “Broad Set of Rules and Practices That Govern and Evolution of Organizations That Leverage Business Resources as Services.”

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Architects, Architecture...SOA

Strategic SOA

Traditional vs. SOA Projects

- Collect Current Business Requirements
 - Distill Use Cases For Requirements
 - Realize Use Cases To Design
 - Implement Designs
 - Test / Deploy
 - Done....Right?
- Collect Current Business Requirements
 - Realize Requirements Into Meta-requirements within Use Cases
 - Realize Use Cases To Design
 - Implement Designs.
 - Test / Deploy
 - Done...Nope...Just With Coding!

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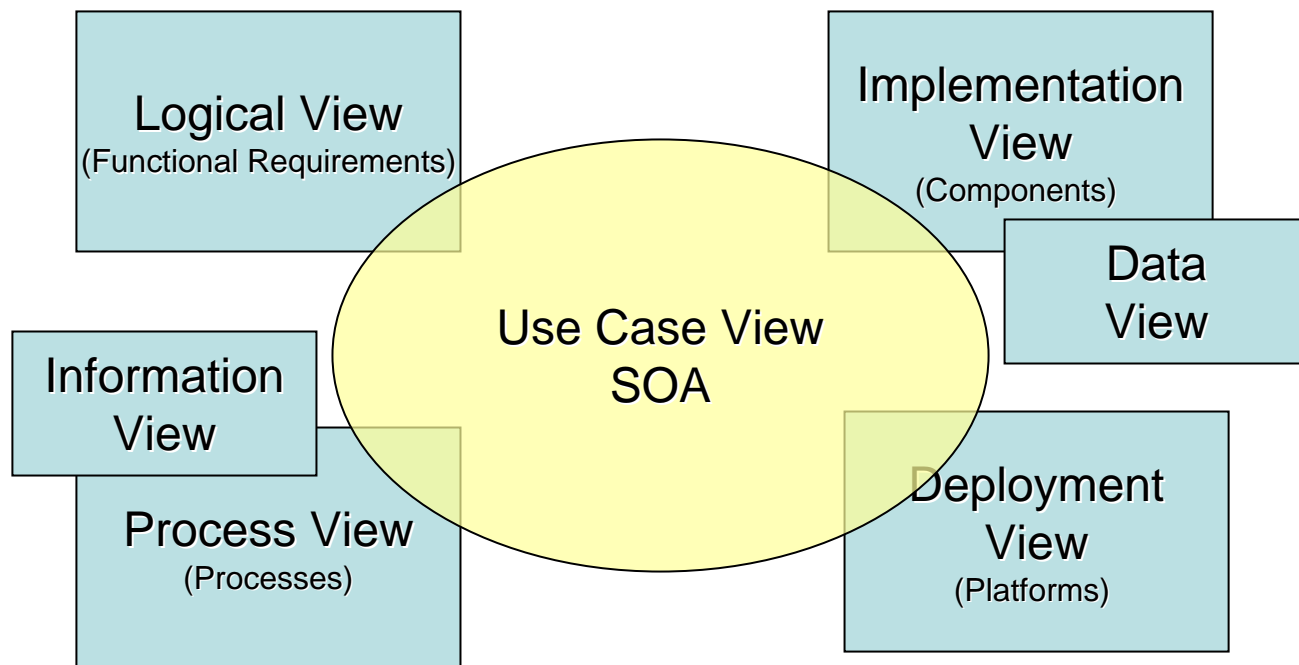
"In SOA, A Use Case ties business requirements to the technology implementation in a Service-oriented way: Meta-requirements and loose coupling of services!"



Architects, Architecture...SOA

Strategic SOA

View Model of SOA



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Two Notes:

- 1) Services Are The Crux of the Architecture
- 2) The Practice of SOA Centers on Services: How To Specify, How To Build, When To Use, How To Compose Into Process



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Architects, Architecture...SOA

Strategic SOA

Enterprise Architect's Role

- **Communicator**
 - The Ultimate Translator Between IT and Business
 - Translates III-defined, Dynamic Requirements To Services
 - Abstract IT to Business and Business to IT
- **Simplifier**
 - The Ultimate Distiller
 - Complex Business World to Easily Understood Services, Processes and Metadata
 - Complex IT World to Reusable Services and Contracts to Meet Change Business Requirements.
- **Evolutionist**
 - Always Looking to the Future
 - Encapsulates Dynamic Requirements Into Metadata
 - Maintain The Evolving Set of Services – Change Management
- **Economic Magician**
 - Leverages Existing Investments
 - Aligns Business Users To Strategic Thinking
 - Focuses IT On Prudent Solution Approaches
- **Pragmatist**
 - Realistic, Stepwise Improvements to Business Use of IT
- **Best Practices Leader**
 - Mature Leader Adopting Best Practices for Organization Not The Latest Technology or The Acronym of The Week!



Architects, Architecture...SOA

Strategic SOA

The New Business Analyst

- Business Analyst - Interacts With Technology Without Knowing The Underlying Complexity
- Business Analyst Have Critical Roles in Future Services Oriented Applications
- Business Analyst Complements (Short-term SOA) The Enterprise Architect (Long-term SOA)
 - Analyze Business Requirements and Configured Systems to do What Business Needs
 - Business Analyst combine and recombine Services to meet business change.
 - Business Analyst is Responsible for Fulfilling the Business-side Terms of the Contractual Relationship

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Architects, Architecture...SOA

Strategic SOA

Death To Developers and IT!!!

- Let's Not Get Crazy Here
- Yes, Overtime Fewer and Fewer New Services Will Need to be Created
- Business Users Will Always Want Newer Services
- IT Will Still be Necessary to Create and Support New Services
- IT Will Also Need to Support The Underlying Systems..
- IT Will Shrink...Less Complexity and Fewer Systems Means Less Effort In Creating and Maintaining Systems.
 - Industry Expectations Range Between 30-40% Reduction In IT Spending

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Service Oriented Thinking

Strategic SOA

When NOT to Think Service Oriented

- Service Orientation Requires As Much Change in Organizations as in the Implementation of Technology
- Sometimes the Pros Are Outweighed By The Cons
 - Pros: Greater Business Agility, Empowered Business Users, Reducing Integration Costs, Improved IT Value
 - Cons: Greater Performance Overhead, Increased Architectural Discipline, Rethinking Producing / Consuming IT Assets
- Four Situations:
 - Homogeneous IT Environment
 - True Real-time Performance
 - Static Business Environment
 - Tight Coupling Required

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Service Oriented Thinking

Strategic SOA

Homogeneous IT Environment

- SOA Abstracts (Simplifies) The Middleware Yarn Ball
 - No Middleware....SOA May Be Overkill
- Heterogeneous Hardware...Not a Good Reason
- Homogenous Software Infrastructure / Heterogeneous Application Mix....May Be a Good Reason
- Homogenous Environment / External Third Party Integration....May Be a Good Reason

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Service Oriented Thinking

Strategic SOA

Real Time

- SOA is NOT Well Suite To Situation Requiring Enforced Response Times...Better Tightly Coupled
- When Life Depends On Speed, Stay With Tightly Coupled Architectures
- Real Time or "Right-Time"
 - Information Provided in a Few Seconds (i.e. BI Report)
 - Improve Onerous Batch Processing of Legacy systems
 - SOA Fits Well With Right Time..

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Service Oriented Thinking

Strategic SOA

All Things Stay The Same

- Decade Old Legacy System Still Meets Today's and Tomorrows Needs.
- Few Reasons to Change Legacy Systems
- Potential Benefit:
 - Exposing Legacy Systems as Services Allows for a Little More Business Value.
 - Make Those Legacy Systems Participate in Business Processes

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Service Oriented Thinking

Strategic SOA

Performance Sacrifice For Stand Alone

- Application That Resides On A Single Physical Computer
 - Why Introduce The Performance Hit Of Loose Coupling
- Don't Forget Moore's Law
 - Performance Won't Be An Impediment For Very Long!
 - This Laptop Could Match The Processing of Supercomputers Only a Mere Decade Ago!

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Service Oriented Thinking

Strategic SOA

Why Change...Give Me One Reason

- One IT Mantra...Do More With Less
- SOA Presents The Paradox
 - Divert Spending Toward Architecture Leads to Reduction of IT Expenses
- SOA Eliminates the Needless, Tightly Coupled Middleware
 - The More Middleware You Get Rid of...the few:
 - Hardware Systems
 - Consultants
 - Even Staff Need to Manage the Complexity
- SOA Eliminates Redundancy of Functionality
 - How Long Ago Did You Implement A Customer Database
 - Why Are You Implementing It in CRM, ERP, Portal and Web-based Systems.
 - SOA Enables Companies To Build One Service and Reuse It.

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Service Oriented Thinking

Strategic SOA

Case Study – Telecommunications Giant

- Massively Complex Array of Products
- Industry: Whoever Offers Best New Service...Wins
- Situation: Merger of Two Telecommunications Giants
 - Realized Over 50% of IT Was Redundant
 - Multiple Instances of Same System Functionality:
 - On Average Between 5 – 25 Times (one – 45 Times)
 - Two Very Large Yarn Balls Being Merged Together
- Project: Early 2003 Kicked-off First SOA Initiative (Production Late 2004)
 - Transform 250 Business Transactions Into 57 Service Oriented Applications
- Results:
 - Slashed IT Budgets By Greater Than 50%
 - Handling Over 3 Million Transactions Per Day
 - Introduced New Set Of Products Not Possible With Previous System

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IT Governance Overview

- A decision-making and accountability framework for IT resources
- A governance council decides:
 - The framework for **decision-making**
 - How to **allocate responsibility** across the organization
 - **Processes** involved in making decisions
 - **Metrics** for monitoring the effectiveness of the organization
- Aims to provide visibility and control as well as a clear decision making process
- Governance is not the management of IT
 - but setting the right framework for IT management

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SOA Governance

- Pre-SOA organizations Typically have IT assets that are tightly coupled to *business units* not *business function*
- SOA governance is particularly important because:
 - SOA requires a clear *architecture*
 - SOA Processes should be based on *domains* and not business units
 - SOA requires a clearly defined *funding model* that allows business services to be used and allocates cost effectively

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SOA and IT Governance

- SOA Governance = "IT Governance v2"
 - SOA Governance is not governance of SOA... it is IT Governance rewritten with Service Oriented thinking
- SOA is Enterprise Architecture
 - Formalized
 - Simplified
 - Structured
- The Governance depends on the architecture and therefore must match that architecture

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Service Oriented Thinking

Strategic SOA

SOA Governance Don't Leave Home Without It!

- Service Oriented systems have plenty of complexity:
 - Distributed computing
 - Typically XML based
 - Heterogeneous systems
- Also more powerful
 - Wider connectivity
 - Often involves opening up tightly coupled systems and working cross-organization
- Governance is vital to ensure policies are properly implemented and enforced

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Service Oriented Thinking

Strategic SOA

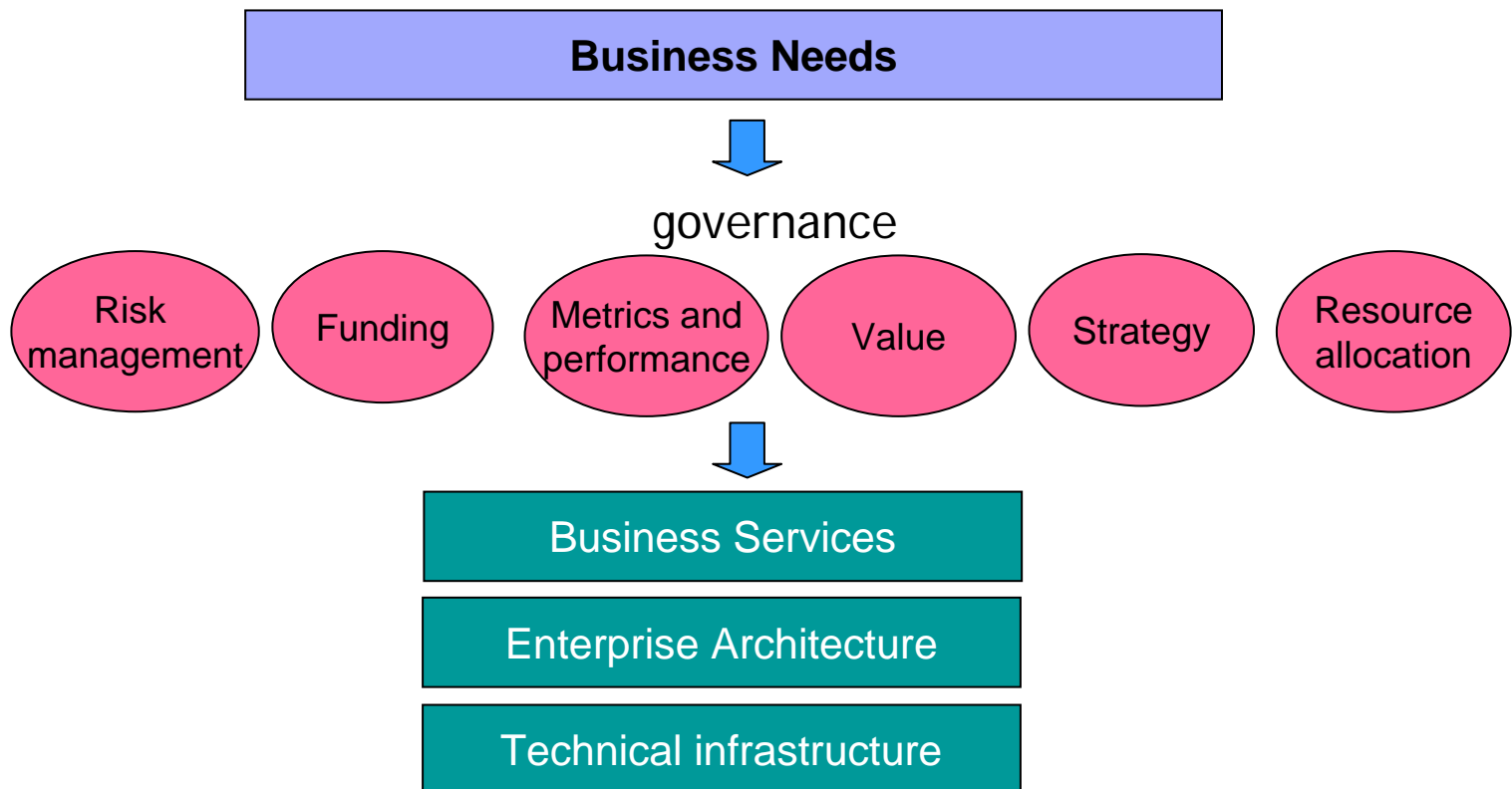
SOA Governance Challenges

- The SOA Ownership Squabbles:
 - Interdepartmental rivalry becomes rewritten
 - Lack of clear responsibilities and domain ownership
 - Rival groups fighting for ownership of domains or business services
- The SOA vicious circle:
 - Current funding models are based on BUs
 - No incentive for a BU to make services available to a wider audience
 - Service initiatives cannot get funded
- The SOA bandwagon:
 - Everyone is “fully committed” to SOA
 - Plenty of “SOA initiatives” to make the current infrastructure “SOA-enabled”
 - but no real changes to structure, processes or architecture

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SOA Governance Framework



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Service Oriented Thinking

Strategic SOA

SOA Governance Objectives

- Governance should focus on:
 - Aligning IT with business strategy
 - Delivering value
 - Measuring and monitoring performance
 - Assigning resources
 - Risk management

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Service Oriented Thinking

Strategic SOA

Introducing Domains

- In order to govern a SOA, it needs to be split into domains
- Each domain contains a set of services that relate to the same business area and share some business context
 - For example customer management, purchasing, order processing, logistics
- Each domain manages and owns those services:
 - Service management and availability
 - Business Logic encapsulation
 - Service usage metrics
 - Location independence and service publication
 - Data and message formats

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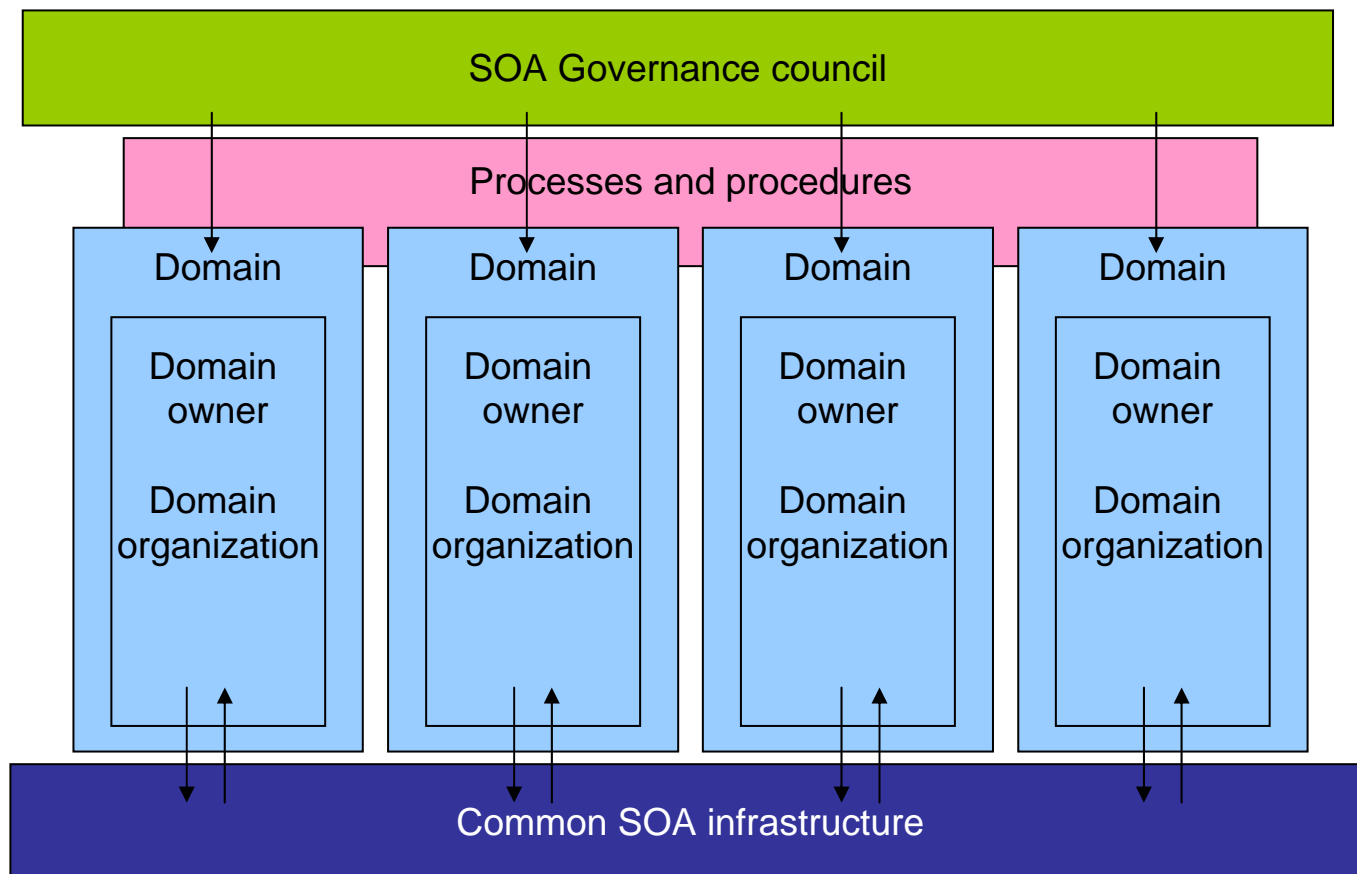




Service Oriented Thinking

Strategic SOA

SOA Governance Framework



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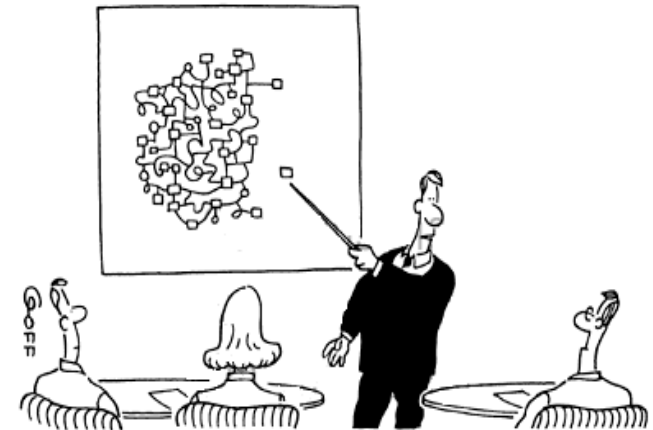


Service Oriented Thinking

Strategic SOA

Federated Organizations...

- **Federated Organizations** = Complex organizations with multiple lines of highly autonomous business which share in a common centralized association. Group-level (business unit level) IT organizations are often charged with supporting the autonomous business organizations, but typically lack the governance structures, tools and methods to drive the optimization of IT management disciplines across the enterprise
- Central IT management must employ specialized methods and tools while opening lines of communication to better align and optimize investments across the enterprise
 - Balancing centralization vs. decentralization (finding the right level of centralization)
 - Driving consistency and alignment through governance, processes and tools
 - Managing the real issues: End user empowerment, cost and control sharing, while mitigating competing/conflicting interests across multiple lines of business



"And Frank, you'll be here, in charge of thinking up a better organizational arrangement."

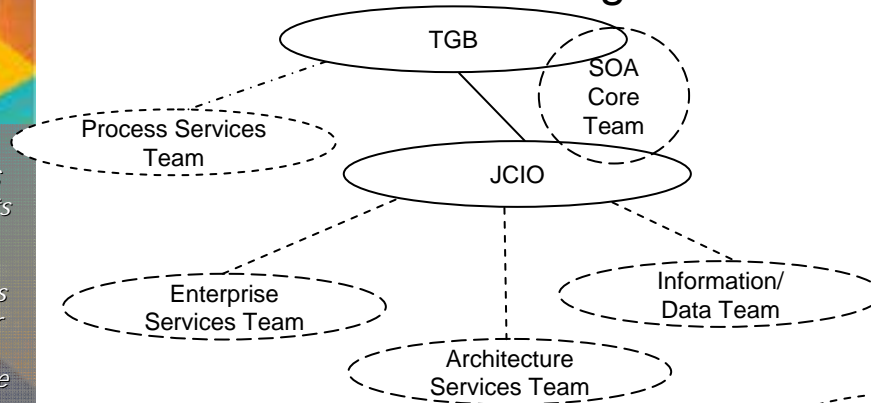


Service Oriented Thinking

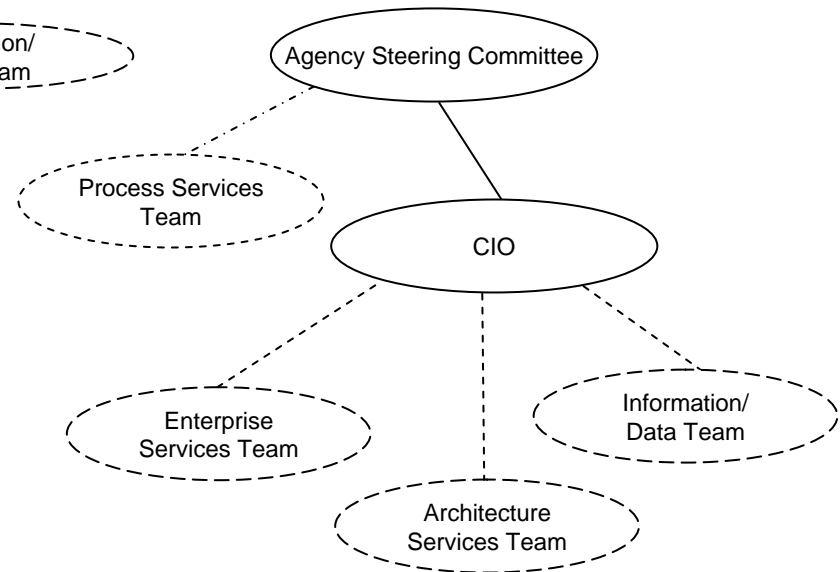
Strategic SOA

Governance From A Federated Perspective

State-wide Oversight



Agency Oversight



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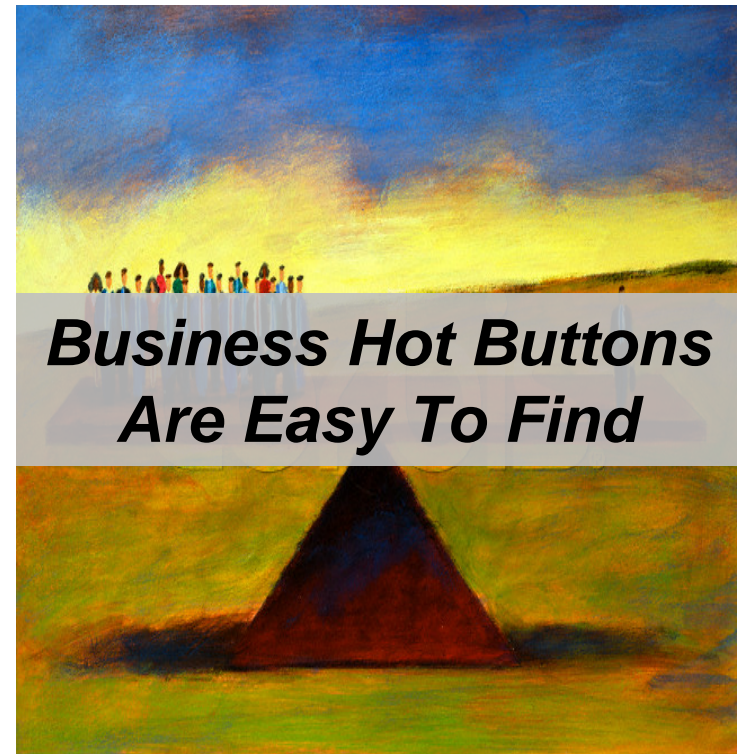


Let's Get Started

Strategic SOA

Avoid Boiling The Ocean

- Service Orientation Requires Change Throughout The Enterprise
- SOA Requires Enterprise Architecture Which Affects All Aspects of Business
- Enormous Benefits (Get Rid of the Yarn Ball)
- Getting Started:
 - Start With Particular Business Problem
 - Develop Your SOA Plan
 - Two Motives: Tactical and Strategic
 - Tactical: Solve The Problem
 - Strategic: Champion Service Orientation
- Must Formulate an SOA Strategy



***Business Hot Buttons
Are Easy To Find***



Let's Get Started

Strategic SOA

SOA Strategy

- Some Strategic Limitations of SOA
 - Business People Are Unfamiliar With The Power of SOA...Its Still Emerging
 - SOA Is Complex and Technical...Most Champions Are IT-based
- Start Small...Grow Deterministically
 - (Step 1) Begin With Small But Significant Project
 - Solve Specific Problem (Limited)
 - Build Service Orientation Acceptance With Management and SOA Acceptance With IT
 - (Step 2) Quickly Implement Broader SOA Initiatives – Cross Organizational
 - Build Shared Services
 - Force Enterprise To Work Out Organizational Issues
 - (Step 3) Enterprise Initiative
- Think In Terms of Enterprise From Beginning
 - Avoid Localized SOA Initiatives That Go In Different Directions – Yarn Ball!
- Master Architecture Plan Is Key To SOA Strategy
 - Level of Detail Important
 - Too Much: Analysis Paralysis
 - Too Little: Plagues Efforts With Redundant Efforts / Incompatibilities
 - Iteratively Build...Incorporate Lessons Learned

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Let's Get Started

Strategic SOA

Start Small = Pilot Project

- Pilot Projects Are Great For Safely Testing New Techniques & Technologies...SOA
- Pilots Are **NOT** Proof of Concepts
 - Both Are Trial Projects That Evaluate New Techniques & Technologies
 - Proof of Concepts Determines Worthiness of Concept for Future Efforts, But Doesn't Solve Business Problems
 - Pilot Determines Worthiness of Concept for Future Efforts and Actually Addresses A Business Problem
- Why Pilot SOA:
 - Build Acceptance For SOA
 - Work Through Challenging Aspects of Architecture and Planning Services
 - Technical Team Experience With SOA Intricacies
 - Fine-tune Methodologies and Techniques for Implementing SOA
 - Evaluation Technologies That Enable SOA
- Primary SOA Pilot Pitfall
 - Don't Forget The Architecture...You Are Piloting It!!!
 - May End Up With Old Architecture Warmed Up With Standard-based Interfaces

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Let's Get Started

Strategic SOA

SOA and Web Services

- SOA Pilot Pitfall
 - Pilot The SOA Architecture...Not The Web Services.
- Isn't SOA and Web Services Synonymous?
 - NO!!!!
 - SOA is a Software Architecture. You Don't Have to Use Web Services to Accomplish SOA.
 - Web Services Are Little More Than Standards-based Interfaces.
- SOA Pilots Address:
 - Architectural Planning, Modeling and Organization
- Web Services Pilots Address:
 - Implementing a Standards-based Interface....Near Trivial Exercise!
- Why Are You Preaching?
 - Teams Often Abandon The Architecture Focus and Focus Building Services
 - Developing Architecture Best Practices is Hard Work
 - Identifying The Right Services To Build While Assuring Loose Coupling Through Contracted Interfaces is **NOT** for the Faint of Heart.

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Let's Get Started

Strategic SOA

SOA Pilot Essentials

- Architecture Plan
 - SOA is an Enterprise Architecture Mapping How Business Interacts with IT
 - Must Put Some Subset of the Enterprise Through Its Paces
- Specific Scope
 - Start With Existing or Desired Business Process and Decompose to Identify Areas of Redundancy....These Lend Themselves Well To Services.
 - Scope A Reasonable Set of Services for the Pilot
- Clear Acceptance Criteria
 - How Do You Know When You Are Finished? How Do You Know It Was Successful?
 - Recommended Criteria:
 - A Complete Architectural Design: Design Should Extend the Broad Plan You Started with Service Contracts and Other Working Elements of a Working SOA Implementation
 - Reusable Business Services: Target Level of Reusability for the Services You Build, including the Number of Services and Number of Consumers per Service
 - Governance Criteria: Governance Infrastructure Provides Identities, Policies, and Rules for Ongoing Management / Evolution of the SOA Implementation

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Let's Get Started

Strategic SOA

Quick Discussion of Methodology

- Top-Down / Bottom-Up Planning
 - Top-down Planning
 - Assemble Long-term Architecture: View Model of SOA
 - Process Decomposition: Break Down Process, Identify Services, Detail Contracts for Services
 - Contracts Drive Development / Testing
 - Bottom-up Planning
 - Examine Current IT Resources To Be Exposed As Services (Techies Favorite)
 - Once Exposed, They Can Be Incorporated Into Business Process
 - SOA Approach Uses Both
- Incremental Approach
 - Top-down Planning: Recommend Building Services Too Complex
 - Bottom-up: Develop Services You Don't Need or Don't Solve Business Problems
 - First, Dive Into Process Decomposition and Services Definition Activities
 - Circle Back, Improve the Plan....Revisit The Processes and Services
- SOA in Its Vary Nature is Iterative!
 - Implementation in Constant State of Flux...Because Business is!

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Service Orientation and the SDLC

- Software Development Life Cycle (SDLC)
 - Concept of Life: Conception, Birth, Childhood, Adolescence, Leaving Home, Maturing, Aging, Death
 - Typical SDLC (Waterfall):
 - Requirements Gathering
 - Design (Birth)
 - Implementation (Childhood)
 - Testing (Adolescence)
 - Deployment (Leaving Home)
 - Operations (Maturing)
 - Legacy (Aging)
 - Retirement (Death)
- Just Like Life....It Doesn't Always Work Out So Well
 - 85% of All Project Fail in One Way or Another...

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Why Waterfall Fails

- Top Five (5) Reasons Why Project Fail:
 - Miss Understanding of Technical Requirements
 - Poor Communications
 - Problems Occur Late in the Life Cycle
 - Hard to Adapt During the Life Cycle
 - Requirements Change
- Iterative Methodologies to the Rescue!
 - RUP / Spiral
 - Addressed the First Four
 - Miss Understanding Requirements: Iterations Continue to Address Requirements Until Complete and Understood...The Cycle
 - Poor Communications: Iterations Force Highly Collaborative Environment
 - Problems Occur Late: Iterations Incrementally Address Implementation...You Know Issues Very Early
 - Hard to Adapt: At the Completion of Each Iteration...You Adjust
 - Don't Address the Fifth....At Least Not Very Well
 - Methods Assume Completion...Finite. SOA is Never Complete...Ever Changing...Ever Adapting

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Quick Topic: Atomic & Composed Services

- Two Basic Kinds of Services: Atomic & Composed
 - Periodic Table Starting To Make Sense?
 - Atomic Services: Contracted Interface to a Component, Data or Software
 - Composed Services: Abstraction of a Collection of Services Composed To Form A More Complex Services: Business Processes on Their Own
- Consumers Never Know if a Service is Atomic or Composed
- The Differentiation Matter When Your Building The Service
- Start Thinking.....Lego®

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Legos® to the Rescue

- Again, Let's Not Throw The SDLC Baby Out With the Bath Water.
 - Fundamental Change – Dramatically Shorter Lifecycles
 - Creating & Modifying Each Individual Service is a Project...Micro-Projects (sometimes Pico-Projects).
- Atomic Services Must Follow a Software Methodology
- Composed Services Evolve...No New Software
- Service Oriented Projects Are Like Building Something with Legos®
 - When You Begin...No Blocks.
 - Mold the Plastic Blocks...Very Technical
 - Once We Have Blocks to Form The Master Piece...Don't Like What You See...Break It Down and Re-assemble!
 - Need More Block...Mold More Plastic Blocks (or Buy Them!)

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The Agile Methodology

- Services Are Build From Contracts
- The Agile Methodology Address the Fifth SDLC Issue
 - The Goal of Agile is to Build Just What the User Requires (Contract)
 - Leveraging the Minimum, But Appropriate Level of Documentation
 - Eliminate Extraneous or Superfluous Documentation and Activities
- Tenets of Agile for Service Orientation
 - Maintain a Focus On Simplicity – Services Must be as Simple as Possible
 - Maintain Small Team Sizes – Teams Must be Small Enough So That All Understand the Issues
 - Test-driven Approach – Build the Service Contracts, Then the Contract Tests, **THEN** the Code.
 - Refactor When Necessary – Rework Existing Code to Make It Simpler, Better Performance, More Secure or More Efficient Without Changing Functionality. Efficiency From Service Oriented Perspective is Merging Two Services of Similar Functionality or Creating a Third from the Common Functionality
 - Focus On User Requirements – Focus on the Contract. Everything Else is Superfluous!

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Two Sphere of Service Oriented Development

- SOA Architects Create Three Models of Abstraction:
 - Business Requirements Models (Business Activity)
 - Service Models (Predominantly Contracts)
 - Implementation Models (Technical Activity)
- Two Spheres of Service Oriented Development: Business Activity and Technical Activity
 - Scenario 1: Business Analysts Gather Requirements, Configure / Compose Services to Meet Requirements...All the Services Are There
 - Scenario 2: Business Analysts Gathers Requirements, Specify Functionality Required by Creating / Modifying Service Contract Metadata In Service Model, Programmers Implement Service, Analyst Configure / Composes Services to Meet Requirements...Not All the Services Are There.
 - Scenario 3 (Refactoring): Programmers Change Services Without Changing Functionality.

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Building Agility with Agility

Strategic SOA

Four Pillars of Service Oriented Development

- Pillar 1: Iterative Development
- Pillar 2: User Involvement
- Pillar 3: Contract-first Development
- Pillar 4: Refactoring

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Building Agility with Agility

Strategic SOA

Build, Buy or Repurpose...

- Build
 - Building Business Services "From Scratch" Means Establishing the Policies and Other Metadata that Governs How The Service Works.
 - Build Services In-house...Can't Really Outsource
 - Buy the Underlying Code...But Not the Metadata
- Buy
 - Third-Parties Can Definitely Supply Underlying Implementation...but the Metadata is a Totally Different Question
 - Business Services...the Real Question is "Will Companies Purchase Composite Services"
 - Not Technology...Business Process Outsourcing
 - Purchasing a Business-focused Services from a Third-Party, You Must Think First If You Want To Outsource The Process in the First Place.
- Repurpose
 - Service Development Focused on Service Extension and Reuse
 - Organizations That Have Led With Top-down Approach Rather Than the Legacy Wrapper (Bottom-up) Will Be Better Positioned.

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To Use or Not Reuse...That is the Problem!

- How Long Have We Been Talk'in This?
 - Object Oriented Development: Component Reuse
 - Client / Server: Sharing Server Assets for Business Logic Reuse
 - Even COBOL Had Reuse Identified as a Benefit
- Previous Approach to Reuse
 - Initially Copy / Paste, But Just One Change and Ouch! Multiple Branches (2, then 4, then 8, Geometric)
 - OO Centralized Code Libraries – Tightly Coupled. Change The Library and OUCH! Every Application Impacted
- Service Oriented Approach to Reuse
 - Service Provides Data to Customer...Contract.
 - Twelve Consumers, But Data Presented Differently
 - Create Dozens of Services? Where's the Reuse
 - Create One Complex Contract? Where's the Agility
 - Create Twelve Small, Different Contract...Yes
 - Service Orientation Doesn't Guarantee Reuse: People Need to Find and Understand!
 - Service Orientation Places Reuse within Reach...Organizations Must Mature.

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What Newton Talking About Us?

- Sir Issac Newton's First Law of Physics: Any Object In Motion Stays in Motion Unless Acted Upon by an External Force.
- Every Organization Will Keep Doing What It Was Doing Unless External Forces Change It
 - Or "When The Pain of Change Exceeds The Pain To Not Change....Change Will Occur!"
- Service Orientation Has A Pervasive and Significant Impact on the Organization Across The Enterprise...That's a Lot of Inertia!
- So How Can We Get The Enterprise To Buy-in....

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The Old ROI Paradigm

- To Quote Charlie Brown, "Aaaaarrrrrrrgggggghhhhhh!!!"
- Unfortunately, Today's World of Tight IT Budgets, Increased Regulations, Global Competition, and Accelerating Change Requires Companies (and Government) to Quantify Investment Results.
- SOA ROI Presents One Primary Challenge: Architecture Does Have Features to Tie Directly to Business Benefits...It's an Investment Before the Features
- SOA Provides Business Benefits in the Following Areas:
 - Reduced Integration Expense
 - Reduced Development Cost Through Asset Reuse
 - Increased Organizational Agility
 - Reduced Risk Through Increased Control & Visibility

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The Old ROI Paradigm – Integration / Reuse

- Reduced Integration Expense: Remove Complex Middleware
 - Remove License Costs, Consultants and Maintenance Costs
 - Not Big-Bang: Phase Out Middleware Incrementally
- Reuse
 - SOA Allows Users to Create / Modify Business Process through Service Composition
 - Service Reuse Over Integration! Apply the 70% Elsewhere
 - Other Benefits:
 - Increased Responsiveness to Customer Demand
 - Reduction of IT Staffing

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The Old ROI Paradigm – Agility / Compliance

- Organizational Agility
 - No More Long Implementation Cycles
 - Make Changes as the Business Environment Demands
 - Companies May Embed Business Processes in Service Partners and Suppliers
- Compliance
 - Implementing SOA to Control Processes, Establish Enterprise-wide Security, Privacy, and Auditability of Information Trails...
 - How Much Are You Spending On This?
- Some SOA Project Provide ROI Immediately...Some Overtime, But the ROI is Dramatic!

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Reaching The SOA Tipping Point

- Tipping Point: Technologies Begin With Few People Using Them, But Then Transition to Widespread and Ubiquitous. Obscure to Commonplace
- Robert Metcalf (Ethernet Inventor) – Network Effect: The Usefulness of Networks Increases Proportionally to the Number of Things Connected to the Network.
- SOA Tipping Point: At First Only a Few People Will Use Service Available, but Those Services Will Go From Obscure to Common Place...
 - Key Indication: The Demand for and Supply of Services Explodes!
 - Supply Leads to Increased Demand That Perpetuates the “Network Effect”

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The New Luddites

- The Old Luddites:
 - Ned Ludd (England) Led Revolt Against Textile Manufacturers Who Leveraged Steam or Water Powered Looms.
 - Broke Into Factories and Smashed Automated Looms
 - English Army Put Down the Revolt
- The New Luddites
 - The More Service Orientation Restructures Organizations the More Resistance.
 - IT Middle Managers Transition to Domain Service Managers
 - IT Integration Specialists Go Away...No Need
 - Line-of-Business Owner Fear Too Much Control In Business Users Hands,
 - Etc.

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Service-Oriented Organization

- Again, SOA Will Dramatically Effect How IT is Organized
- Service Orientation Mandates The Use of Shared Services
- Business Centric Services Differ Greatly From IT Centric Silos
 - No Portal Manager....Customer Services Manager, etc.
- Service Orientation Moves Organizations From Rigid Hierarchies....to Flattened Organizations.
 - Not The End of Hierarchies, just flattening
- SOA Centralized On Three (3) Lines of Control:
 - Senior LOB Communication Policy Through SOA Governance Tools,
 - Service Domain Managers Coordinating the Use of Services
 - SOA Architects Providing Oversight of the Implementation

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Metaprocesses – Future Flex

- Metaprocesses Are Processes Dealing With Processes...What...Again Please..
 - Let's Say That We Have SOA in Place and the Processes In Place Are Service Oriented Processes. In Addition To Specifying the Normal Flow, the Process for Dealing With Exceptions is Also a Service Oriented Process
- More Detail Please...
 - OK. Lets Pick an Insurance Company. Every Time the Regulations Change...They Have to Rework The Underwriting Process. Instead, Service Orientation Let's Them Automate The "Rework Underwriting Process" ...WOW!
- Today's Metaprocesses Are Usually Human Intensive
- The Challenge of Automating Metaprocesses Offers the Greatest Promise for SOA
- Don't Expect Automation of Metaprocesses Next Week, But SOA Lays The Foundation!

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Sunset of Legacy – System Imortality!

- Service Orientation Unlocks the Shackles of Legacy
- Additionally, SOA Potentially Increases the Value and Longevity of Existing Legacy Systems
- No More Legacy in the Service Oriented Enterprise?
 - Legacy Systems Traps Business Logic
 - Service Oriented Process Contain the Business Logic
 - Logic In Services is **NOT** Business Logic
 - Is This Viable: Short-term No / Long-term Absolutely
 - Slow Evolution of IT...No Quick Fix

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Business Web

- Business World of Tomorrow – Business Web
 - Divisions Between Companies Become Arbitrary
 - Business Capability and Information Flow Freely While Infrastructure (Security, Policies, Remuneration, etc.) Fade
 - Any Entity Can Do Business With Any Entity in a Seamless, Automated Fashion
 - Competition Drives Innovation...Innovation Drives Daily Work
 - Business Web...Science Fiction

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Summary

Strategic SOA

What Does This All Mean?

- Service Orientation Will Impact Business With The Same Soft of Transformation We Saw In The 1990s...It Will Just Take a Bit Longer
- It is Inevitable
- Most Companies Are On The Road To Service Orientation...Although Most of the Effort is in IT
- Your Skeptical...Its Expected...It's a Paradigm Shift
 - There Have Been Others...
 - The Personal Computer...How Many of You Own One
 - The Internet...Anyone Use a Browser This Week, Month, Year
 - The Man on the Moon...
 - And Finally the Cubs Win a World Series (well some things will never happen...OUCH!)

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